

This newsletter marks the start of the 2013/14 lecture programme, details of which are below:

8th October

Dr John Schumacher (Bristol University)
Greenland Geology

12th November

Prof Brian Williams (Cork University)
The Last Great Ice Age—the Permo- Carboniferous of Gondwanaland

10th December

Dr Jo Gottsman (Bristol University)
Canary Islands—Volcanic Processes

14th January

Three Research Students (Bristol University)
Various Topics

11th February

Dr Rob Strachan (Portsmouth University)
Caledonian Geology

11th March

Dr Nick Ashton (British Museum)
Lower and Middle Paleolithic Archaeology

29th April: Annual General Meeting Quiz or lecture

Present WEGA committee:

Doug Robinson	Chair
Roy McIntyre	Vice-chair
Bobby Oliver	Secretary
Judith Hible	Treasurer
Vacancy	Field secretary
Phil McHenry	Webmaster member
Vacancy	Newsletter editor
Gloria Castle	Member
Ian Donaldson	Member
Elizabeth McIntyre	Member
Fflyff McLaren	Member

FIELD TRIPS

The 2012-13 session field trips were organised jointly by the Bath Geological Society, Bristol NATs (Geology section) and WEGA (West of England Geologists' Association), and it is widely agreed that these have been a good success. Field trips for the 2013/14 session will also be jointly organised. The WEGA-organised trips included one to the Radstock Museum and Writhlington Batch in March, and a week trip to the North Pennines in June, along with a walk from Wookey Hole to Wells in September. All trips went well and attracted a mixture of participants from the three groups; a (long) report on the Pennine trip forms the bulk of this newsletter. The Mendip walk was heavily oversubscribed and two extra walks were added to cope with the numbers. At the time of printing, places are available on the walk arranged for Saturday 5th October as detailed below:

The field trips remaining from the 2012/13 programme are:

October 5th: Mendip geology in a 4 hour walk

Dr Doug Robinson, Univ Bristol

On this walk all the main rocks found in the Mendips will be seen, and used to interpret the geological history of the region. The Devonian, Portishead formation and Carboniferous limestone are exposed across the Pen Hill pericline. The Triassic Dolomitic conglomerates forms large fans of coarse debris that spread southward, and are interbedded with thick sequences of the finer grained sand and mud facies of the Mercia Mudstone. The late Triassic marks the change from continental to marine sequences, with deposition of mudstones and fine grained limestones of the Blue Lias formation. The youngest rocks are of mid Jurassic age with limestones and thin muds deposited around the islands of the Mendip archipelago.

The walk will follow public footpaths giving good to rough going, with an overall ascent of ~ 200m. Starting from Wookey hole, past Arthur's Point, and on along the southern slopes of Pen Hill, descending by way of Prior's hill, crossing the A39, and along the edge of Stoberry Park and in the Wells square on a market day.

Maximum participants 15. Booking and further details drgldr@gmail.com

October 19th: Geology of the Gower Peninsula

Dr. Geraint Owen, University of Swansea

Travel will be by coach

November 16th: Moon's Hill and Tufa

Prof. Maurice Tucker, Durham University and Dr. Lisa Thomas, Bath Spa University

We will have an introductory talk at the Somerset Earth Science Centre, explore Moon's Hill Quarries i.e the Silurian volcanics and the Devonian Old Red Sandstone. Next we will visit Fairy Cave Quarry (Carboniferous Limestone) and St. Dunstan's Well - a karst spring rising below the quarry. Then, finally, we will look at the tufa deposits in Harridge Wood or, possibly, at Whitehole Farm.

Meet at the Somerset Earth Science Centre, Stoke St. Michael, near Radstock at 10.30 a.m.

Further details on these trips and booking information are posted at (<http://people.bath.ac.uk/exxbgs/field13/index.html>)

Possible future trips include:

1. Trip to quarries on May Hill - Sunday in April or September
2. Trip to Wells, building stones in morning, museum in afternoon - Sunday in June

3. Thirty-one years ago in 1982, a WEGA-based group went on an exotic field trip to the SW USA, accompanied by Drs Brian Hawkins, Doug Robinson and Brian Williams. Plans are afoot to take another trip to the SW USA in September 2014, concentrating on the Colorado Plateau and parts of the adjacent Basin and Range Province. Details follow:



West Country Geology Field Trips

Geology of the Colorado Plateau and Basin and Range Province in the SW USA.

The trip is to explore aspects of the geology of the Colorado Plateau and Basin and Range province in the Southwest USA, covering parts of the states of Arizona, Colorado, New Mexico, Nevada and Utah. The Colorado Plateau covers 130,000 square miles and is largely an elevated desert area. The Plateau preserves a remarkable geological history, with Precambrian crystalline metamorphic basement (1.5-2.0 Ga), overlain by Precambrian sedimentary rocks and basalts (~1.0 Ga), both of which can be seen at the bottom of the Grand Canyon. Unconformably overlying these basement rocks is a largely continuous, and flat lying sedimentary sequence, ranging in age from Cambrian to Tertiary. This succession is little deformed, and it records the evolution of the western margin of the USA throughout the Phanerozoic. The lower part of the Palaeozoic sequence is largely dominated by marine sedimentary rocks, marking a passive margin lying to the west. Devonian to Carboniferous sediments record the evolution of Western North America into an active tectonic margin. From the end of the Palaeozoic and through the Mesozoic, terrestrial deposits dominate. Thick aeolian dune deposits are common, particularly from the Permian through the Jurassic, and it is these deposits that give rise to spectacular scenery of the red-rock country as seen in the many famous National Parks of the area. The Tertiary lacustrine sedimentary rocks of the region record the loading of the interior continental crust as a result of the Larimide orogeny that gave rise to the Rocky Mountains.

To the south and west of the Plateau, lies the Basin and Range Province, whose features record the orogenic collapse of the Larimide orogeny. The collapse was accompanied by extension, which stretched the crust giving basins infilled with alluvial fans eroded from the intervening mountain ranges. The extension has also given rise to widespread basic volcanism throughout the Tertiary period, which continues to the present, with volcanics punching through many parts of the Plateau.

The trip will be accompanied by Dr Doug Robinson, who is retired from an academic position in Geology at the University of Bristol. He previously was based for a year at the University of Northern Arizona in Flagstaff, and knows the area well. He also for many years taught a course to third year undergraduates at Bristol on the Geological Evolution of the North American Continent.

The Colorado Plateau is a very large area, and so to see many of the major parks there will inevitably be large distances to cover. The provisional itinerary gives the general distances between locations to be covered, but on top there will be travel within the parks themselves. Travel will be by 7 seater minivans with five persons in each so as to give space for luggage. Volunteers will be needed for drivers – all vehicles will be automatic. Across the region, a range of altitudes will be encountered, from ~ 380m (1250') in Phoenix to nearly 2,700m (9,000') in Bryce canyon, with typical daytime temperatures in September ranging from ~ mid 80s (35°C) to ~70s (21°C) respectively. Because of the number of places to visit, the distances involved, and the need to keep a careful time schedule, there will be little or no opportunity for people to undertake individual activities, with many features of the geology being examined from view points. However it will be possible to follow a variety of the shorter trails in many of the parks, and opportunities to take longer trails such as in:

Grand Canyon – one day will be spent at the main South Rim Village near the start of the Bright Angel trail. There will be opportunity to hike along the rim trail, or venture into the canyon on the Bright Angel trail. It is not feasible to hike to the Colorado river and return in one day, as it involves a round trip of ~ 26 km (16 miles) and elevation change of ~ 2,700 m (9,000').

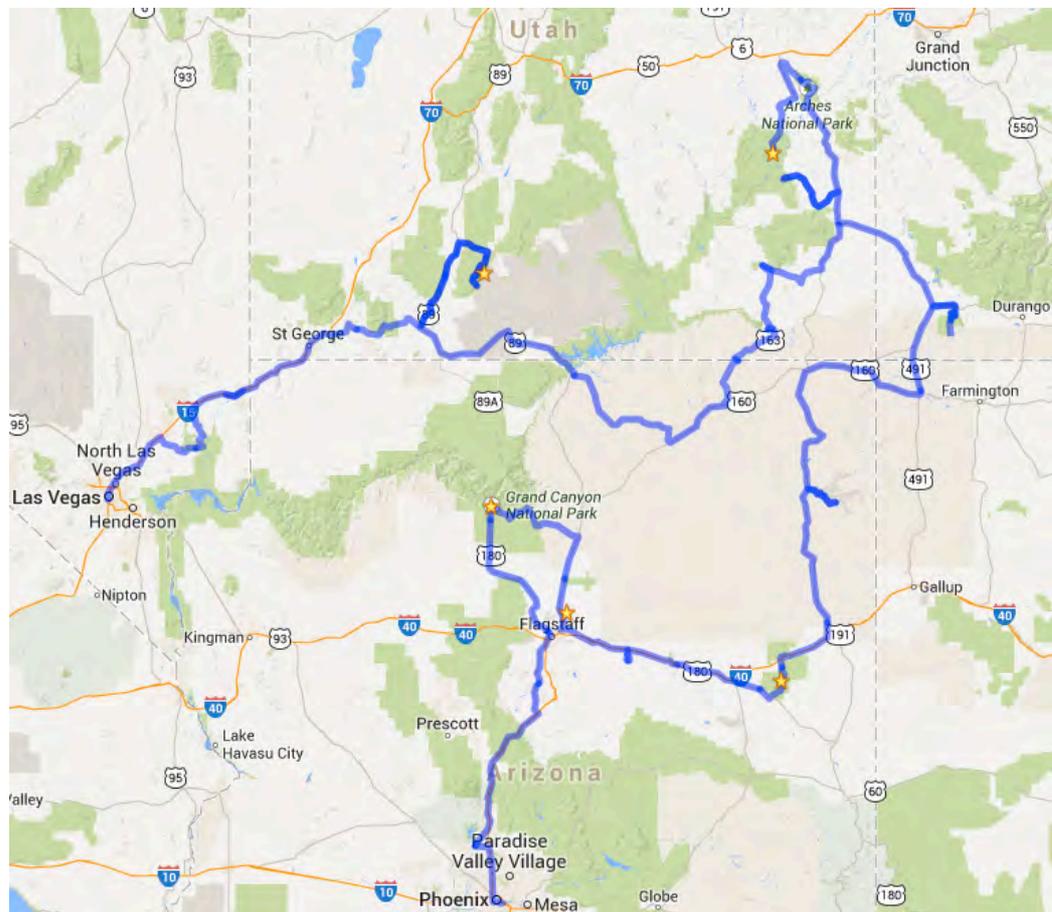
Canyon de Chelly - hike the only public trail into this canyon to see the White House Ruin. The trail starts at ~ 1700 m (5,500'), and it descends some 200 m (700') down a switchback trail through thick aeolian dune beds of the Permian De Chelly sandstone. The trail is without shade and is narrow and with some drop offs in places, and the round trip in hot weather taking ~ 2 hours and covers ~ 4 km.

Arches National Park - hike to the most famous arch – Delicate – formed in the Jurassic, Entrada sst. This trail is ~ 5 km (3 miles) round trip with no shade on the trail, starting at an elevation of ~ 1500 m (5,000') with a gain of ~ 150 m (500') with the final part going along a rock ledge with a dropoff.

Mesa Verde – a 1 hour, ranger-guided tour of Cliff Palace which is the largest *cliff dwelling* in the park. This is at an elevation of ~ 2000 m (6,500'), and involves climbing five 3 m (10') ladders, on a 30 m (100') vertical climb. The tour is subject to booking, a fee (~\$3), and depends on availability.

Trip logistics: The flights, vehicle rental and accommodation will be arranged through the Audley travel company, who have identified the accommodation, apart from that in Winslow, Canyon de Chelly and Monument Valley which is on personal recommendation. Accommodation will be at Best Western-type motels. The estimated cost as of August for the air fares, vehicle rental and accommodation in a twin room is **£2250 pp**. In order for the trip to be viable 14 participants will be needed. Once that number is reached a 15 % deposit will be required to confirm a place, and the balance to be paid 10 weeks prior to departure. Additional costs will include a share of fuel costs (~ £90 pp) and one-way vehicle drop off fee (~£20 pp), park entrance fees (~ £20 pp), all meals and drinks, and any optional tours (e.g. Antelope Canyon ~£25; helicopter trip Grand Canyon ~£170, etc). Provisional timing: the trip is planned for September 2014, and will involve 18 days including travel to/from UK

Provisional route



The next stage in the planning of the trip is to gauge potential interest, and to establish if the viable number of 14 participants can be reached. Thus, if you are interested in joining this trip, please indicate the nature of your interest as either 1) definite, 2) very interested or 3) potentially interested, in an email to Doug Robinson (drglr@gmail.com) - this should be done as soon as possible, and by Friday 20 September at latest. By that date if there is sufficient interest, an updated costing and specific dates will be obtained with an aim of finalizing details by early October. Any additional queries, email Doug Robinson (drglr@gmail.com).

Provisional itinerary

Day 1 LHR – Phoenix BA289 departs 14.40, arrives 17.10. Half hour transfer by hotel coach

Overnight Firesky Resort and Spa, Phoenix

Day 2 Phoenix – Flagstaff, 150 miles

Visiting Lake Pleasant for saguaro cacti; Montezuma Castle; Sedona and Oak Creek Canyon, early evening drink in Museum Club - famous Flagstaff bar - icon of Route 66. Overnight Little America Hotel, Flagstaff

Day 3 Flagstaff - Grand Canyon, 120 miles

Visiting Walnut Canyon; Sunset crater; Humphreys Peak. Overnight Yavapai Lodge, Grand Canyon

Day 4 Grand Canyon

Hike a trail, or take a helicopter flight over the canyon. Overnight Yavapai Lodge, Grand Canyon

Day 5 Grand Canyon – Winslow, 140 miles

Stops along southern rim of G Canyon, finishing at Desert View. Standing on the Corner, Winslow (of Eagles fame). Overnight La Posada, Winslow.

Day 6 Winslow – Chambers, 154 miles

Meteor crater; Petrified Forest; Painted Desert. Overnight Days Inn Chambers

Day 7 Chambers - Chinle, 90 miles

Hubbell Trading post; Canyon de Chelly. Overnight Holiday Inn & Suites Canyon de Chelly

Day 8 Chinle – Mesa Verde, 180 miles

Canyon de Chelly contd; Shiprock. Overnight Far view, Mesa Verde

Day 9 Mesa Verde – Moab, 155 miles

Mesa Verde Park, Needles overlook Canyonlands. Overnight Red Cliffs Lodge, Moab

Day 10 Moab – Arches National Park, 50 miles

Day in Arches National park. Overnight Red Cliffs Lodge, Moab

Day 11 Moab – Blanding, 140 miles

Day in Canyonlands Park. Overnight Blue Mountain Inn, Blanding

Day 12 Blanding – Monument Valley, 115 miles

Natural Bridges Park; Mokee Dugway; Monument Valley. Overnight The View, Monument Valley

Day 13 Monument Valley – Page, 126 miles

Drive around Monument Valley; Antelope Canyon, Page. Overnight Courtyard Page at Lake Powell, Page

Day 14 Page – Bryce Canyon, 155 miles

Bryce Canyon, Overnight Best Western Bryce

Day 15 Bryce – Zion, 90 miles

Breakfast at Galaxy diner in Hatch – 50's style American diner. Zion park, Overnight Cliffrose Lodge & Gardens, Springdale

Day 16 Zion – Las Vegas, 165 miles

Overnight The Mirage Las Vegas

Day 17 Las Vegas – LHR. BA 274 Departs 21.15 arrives 15.00 (next day)